CLAIMS

What is claimed is:

1. A video processing method, performed by a smart device, comprising:

obtaining a target video frame from a to-be-encoded video and determining a to-be-encoded target data block from the target video frame;

obtaining a scene complexity of the target data block, and obtaining data block indicator information of the target data block based on the scene complexity of the target data block;

dividing the target data block into N sub-data blocks, obtaining scene complexities of the N sub-data blocks, and obtaining sub-block indicator information based on the scene complexities of the N sub-data blocks, N being an integer greater than or equal to 2;

determining an encoding mode for the target data block according to the data block indicator information and the sub-block indicator information; and

encoding the target data block according to the determined encoding mode,

wherein the determining an encoding mode for the target data block according to the data block indicator information and the sub-block indicator information comprises:

inputting the data block indicator information and the sub-block indicator information to a joint statistical model;

obtaining an output value that is calculated by the joint statistical model based on the data block indicator information and the sub-block indicator information; and

determining the encoding mode for the target data block according to the output value,

wherein in a case that the output value meets a third condition, the determining the encoding mode for the target data block according to the output value comprises:

obtaining scene complexities of M data blocks correlated with the target data block, and obtaining correlated block indicator information of the M data blocks based on the scene complexities of the M data blocks, M being a positive integer; and

determining the encoding mode for the target data block according to the correlated block indicator information, wherein

the output value meeting the third condition comprises the output value being less than or equal to a first division threshold and greater than or equal to a second division threshold.

2. The method according to claim 1, wherein the data block indicator information comprises one or more of: a distortion estimation parameter of the target data block, a spatial information parameter of the target data block, and a temporal information parameter of the target data block; and

the sub-block indicator information comprises N pieces of sub-block indicator data, wherein i^{th} sub-block indicator data among the N pieces of sub-block indicator data comprises one or more of: a distortion estimation parameter of an i^{th} sub-data block among the N sub-data blocks, a spatial information parameter of the i^{th} sub-data block, and a temporal information parameter of the i^{th} sub-data block, $i \in [1,N]$.

3. The method according to claim 1, wherein in a case that the output value meets a first condition, the determining the encoding mode for the target data block according to the output value comprises:

determining that the encoding mode is a first mode; and

the encoding the target data block according to the determined encoding mode comprises:

dividing the target data block into the N sub-data blocks and inputting each of the N sub-data blocks to an encoder for encoding, wherein

the output value meeting the first condition comprises: the output value being greater than a first division threshold.

4. The method according to claim 1, wherein in a case that the output value meets a second condition, the determining the encoding mode for the target data block according to the output value comprises:

determining that the encoding mode is a second mode; and

the encoding the target data block according to the determined encoding mode comprises:

inputting the target data block to an encoder for encoding, wherein

the output value meeting the second condition comprises the output value being less than a second division threshold.

5. The method according to claim 1, wherein the determining the encoding mode for the target data block according to the correlated block indicator information comprises:

obtaining the correlated block indicator information, the correlated block indicator information comprising: a first quantity of data blocks correlated with the target data block that

are among the M data blocks and that are each divided into a plurality of sub-data blocks for encoding;

in a case that the first quantity meets a fourth condition, dividing the target data block into N to-be-analyzed sub-data blocks;

obtaining scene complexities of the N to-be-analyzed sub-data blocks, and determine to-be-analyzed sub-data block indicator information of the N to-be-analyzed sub-data blocks based on the scene complexities of the N to-be-analyzed sub-data blocks; and

determining the encoding mode for the target data block according to the to-be-analyzed sub-data block indicator information, wherein

the first quantity meeting the fourth condition comprises the first quantity being greater than or equal to a first quantity threshold.

6. The method according to claim 5, wherein the determining the encoding mode for the target data block according to the to-be-analyzed sub-data block indicator information comprises:

obtaining the to-be-analyzed sub-data block indicator information, the to-be-analyzed sub-data block indicator information comprising: a second quantity of to-be-analyzed sub-data blocks that are among the N to-be-analyzed sub-data blocks and that meet a further division condition;

in a case that the second quantity meets a fifth condition, determining that the encoding mode is a first mode; and

in a case that the second quantity does not meet the fifth condition, inputting the target data block to an encoder for encoding and determining the encoding mode for the target data block according to encoding information obtained through encoding for the target data block, wherein

the second quantity meeting the fifth condition comprises the second quantity being greater than or equal to a second quantity threshold; and the second quantity not meeting the fifth condition comprises: the second quantity being less than the second quantity threshold.

7. The method according to claim 5, wherein in a case that the first quantity does not meet the fourth condition, the determining the encoding mode for the target data block according to the correlated block indicator information further comprises:

inputting the target data block to an encoder for encoding; and

determining the encoding mode for the target data block according to encoding information obtained through encoding for the target data block, wherein

the first quantity not meeting the fourth condition comprises: the first quantity being less than the first quantity threshold.

8. The method according to claim 6 or 7, wherein the encoding information of the target data block comprises an encoding distortion parameter of the target data block; and the determining the encoding mode for the target data block according to encoding information obtained through encoding for the target data block comprises:

obtaining an encoding parameter through calculation based on the encoding distortion parameter of the target data block and a quantization parameter for quantizing the target data block;

in a case that the encoding parameter meets a sixth condition, determining that the encoding mode is a second mode;

in a case that the encoding parameter does not meet the sixth condition, dividing the target data block into the N sub-data blocks and inputting each of the N sub-data blocks to the encoder for encoding; and

determining the encoding mode for the target data block according to the encoding information of the target data block and encoding information of the N sub-data blocks obtained through encoding, wherein

the encoding parameter meeting the sixth condition comprises: the encoding parameter being less than a third division threshold; and the encoding parameter not meeting the sixth condition comprises: the encoding parameter being greater than or equal to the third division threshold.

9. The method according to claim 8, wherein the encoding information of the target data block further comprises a first encoding rate distortion loss parameter of the target data block; the encoding information of the N sub-data blocks comprises a second encoding rate distortion loss parameter of the N sub-data blocks, the second encoding rate distortion loss parameter being calculated based on a third encoding rate distortion loss parameter of each of the N sub-data blocks; and the determining the encoding mode for the target data block according to the encoding information of the target data block and encoding information of the N sub-data blocks comprises:

in a case that the first encoding rate distortion loss parameter is greater than or equal to the second encoding rate distortion loss parameter, determining that the encoding mode for the target data block is the first mode; and

in a case that the first encoding rate distortion loss parameter is less than the second encoding rate distortion loss parameter, determining that the encoding mode for the target data block is the

second mode.

10. A video processing apparatus, comprising:

an obtaining unit, configured to obtain a target video frame from a to-be-encoded video and determine a to-be-encoded target data block from the target video frame; and

a processing unit, configured to obtain a scene complexity of the target data block, and obtain data block indicator information of the target data block based on the scene complexity of the target data block; divide the target data block into N sub-data blocks, obtain scene complexities of the N sub-data blocks, and obtain sub-block indicator information based on the scene complexities of the N sub-data blocks, N being an integer greater than or equal to 2; determine an encoding mode for the target data block according to the data block indicator information and the sub-block indicator information; and encode the target data block according to the determined encoding mode,

wherein the processing unit is further configured to:

input the data block indicator information and the sub-block indicator information to a joint statistical model;

obtain an output value that is calculated by the joint statistical model based on the data block indicator information and the sub-block indicator information; and

determine the encoding mode for the target data block according to the output value,

wherein the processing unit is further configured to:

in a case that the output value meets a third condition, obtain scene complexities of M data blocks correlated with the target data block, and obtain correlated block indicator information of the M data blocks based on the scene complexities of the M data blocks, M being a positive integer;

determine the encoding mode for the target data block according to the correlated block indicator information, wherein

the output value meeting the third condition comprises the output value being less than or equal to a first division threshold and greater than or equal to a second division threshold.

11. A smart device, comprising:

a processor, configured to implement a computer program; and

a memory, storing a computer program, the computer program, when executed by the processor, implementing the video processing method according to any one of claims 1 to 9.

12. A computer-readable storage medium, storing a computer program, the computer program, when executed by a processor, implementing the video processing method according to any one of claims 1 to 9.